

REMARKS/ARGUMENTS

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Overview of the Office Action

Claims 1, 4, 8, 11, 14, 15, 19, and 20 have been rejected by the Examiner under 35 U.S.C. § 102(b) as being anticipated by Yu (U.S. Patent No. 5,764,903).

Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 have been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over Yu in view of Day III et al. (U.S. Patent No. 6,185,580).

Claims Rejected Under 35 U.S.C. § 102(b)

Claims 1, 4, 8, 11, 14, 15, 19, and 20 have been rejected by the Examiner under 35 U.S.C. § 102(b) as being anticipated by Yu (U.S. Patent No. 5,764,903). The Examiner alleges that “Yu discloses the claimed invention including a virtual hard drive for emulating a computer system running on a host computer system...” (Official Action, page 2, section 3). However, in response, Applicants respectfully disagree with the Examiner’s conclusions and submit that the invention of Yu does not include each and every claim element present in Claims 1, 4, 8, 11, 14, 15, 19, and 20 of the present Application because, as well-known and readily appreciated by those of skill in the art, (a) the “virtual disk driver” as cited in Yu is not the technological equivalent of a virtual disk drive described in the present Application, and (b) a virtual or emulated computer system of the present Application is not the technological equivalent of the actual, physical computer system hardware disclosed in Yu.

The invention of Yu is directed to “methods for mirroring hard disk data of a primary server over a network to a secondary server” wherein “[a] virtual disk driver is provided between the operating system and the hard disk driver of the primary server” such that “[a]fter the virtual disk driver receives a disk write request that should be mirrored, the virtual disk driver first sends a disk write request to the secondary server” and “[t]he virtual disk driver then sends the disk write request to a disk drive on the primary server” (Yu, Abstract, lines 1-9) (emphasis added). In this regard, Applicants respectfully submit that the only virtualized element taught by Yu is the “virtual disk driver” and not a virtual disk drive as alleged by the Examiner, a disk drive and a disk driver being distinct and separate technological components (as readily understood by those of skill in the art). Moreover, as illustrated in Fig. 1 of Yu, each

physical (not virtual) server 10, 12, and 13 has a physical (not virtualized) disk drive 16, 34, and unnumbered, each of which is described in Yu as a “local hard disk” or an equivalent “remote hard disk” respectively (Yu, col. 3, lines 39-48 and col. 4, lines 22-30). In addition, both the primary server and the secondary server are physical computer hardware systems, and thus neither of these computer systems is an “emulated computer system.” Therefore, since the invention of Yu teaches only physical (not virtual/emulated) hardware systems with physical (not virtual) hard disk drives, it cannot be said that Yu anywhere teaches a “virtual disk drive” of an “emulated computer system” as explicitly set forth in independent Claims 1, 4, 8, 11, 14, 15, and 19 of the present Application.

The specification of the present Application (as amended earlier herein) describes an “emulated computer system” as follows:

A computer manufacturer will attempt to maximize its market share by having more rather than fewer applications run on the microprocessor family associated with the computer manufacturer's product line. To expand the number of operating systems and application programs that can run on a computer system, a field of technology has developed in which a given computer having one type of CPU, called a host, will include an emulator program that allows the host computer to emulate the instructions of an unrelated type of CPU, called a guest. Thus, the host computer will execute an application that will cause one or more host instructions to be called in response to a given guest instruction. Thus, the host computer can both run software designed for its own hardware architecture and software written for computers having an unrelated hardware architecture. As a more specific example, a computer system manufactured by Apple Computer, for example, may run operating systems and program written for PC-based computer systems. It may also be possible to use an emulator program to operate concurrently on a single CPU multiple incompatible operating systems. In this arrangement, although each operating system is incompatible with the other, an emulator program can host one of the two operating systems, allowing the otherwise incompatible operating systems to run concurrently on the same computer system.

When a guest computer system is emulated on a host computer system, the guest computer system is said to be a virtual machine, as the guest computer system exists only as a software representation of the operation of the hardware architecture in the host computer system. The terms **emulator** and **virtual machine** are sometimes used interchangeably to denote the ability to mimic or **emulate the hardware architecture of an entire computer system**. As an example, the Virtual PC software created by Connectix Corporation of San Mateo, California emulates an entire computer that includes an Intel 80X86 Pentium processor and various motherboard components and cards. The operation of these components is emulated in the virtual machine that is being run on the host machine. An emulator program executing on the operating system software and hardware architecture of the host computer, such as a computer system having a PowerPC processor, mimics the operation of the entire guest computer system. The emulator program acts as the interchange between the hardware architecture of the host machine and the instructions transmitted by the software running within the emulated environment.

(Specification, page 2, line 13 through page 3, line 14) (emphasis added).

Based on the foregoing, an emulated computer system (a.k.a., a “virtual machine”) “emulate[s] the hardware architecture of an entire computer system” (Specification, page 3, line 5). In this context, it is not a virtual hard drive that emulates a computer system as suggested by the Examiner (e.g., “Yu discloses...a virtual hard drive for emulating a computer system running on a host computer system,” Office Action, page 2, section 4, second paragraph, lines 1-2), but instead a virtual hard drive is the “virtual” storage device provided for an emulated computer system, that is, a “virtual” machine.

In order to anticipate a claimed invention, a prior art reference must teach or suggest each and every element present in the claim. Yu does not teach or suggest an emulated computer system nor a virtual disk drive as these terms are defined and used in the present Application. Therefore, based on the foregoing analysis, the Applicants respectfully submit that Yu fails to teach all the claim elements necessary to anticipate the present invention of independent Claims 1, 4, 8, 11, 14, 15, and 19 under 35 U.S.C. § 102(b). Applicants therefore respectfully

request that these rejections be withdrawn and that Claims 1, 4, 8, 11, 14, 15, and 19 be allowed to issue. Moreover, Applicants further request that Claim 20, which depends on independent Claim 19, also be allowed to issue as a claim that depends upon an allowable claim.

Claims Rejected Under 35 U.S.C. § 103(a)

Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 have been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over Yu in view of Day III et al. (U.S. Patent No. 6,185,580).

In order to establish a prima facie case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and cannot be based on applicant's disclosure. (MPEP §§ 2142, 2143.)

In regard to the third criteria (that the prior art references or combination of references must teach or suggest all the claim elements), Applicants respectfully submit that Yu fails to teach or suggest an emulated computer system nor a virtual disk drive (but, instead, teaches a virtual disk driver) as discussed earlier herein, and that Day, cited for reasons unrelated to a virtual disk drive or an emulated computer system, does not overcome this shortcoming.

As previously discussed earlier herein, the invention of Yu is directed to "methods for mirroring hard disk data of a primary server over a network to a secondary server" wherein "[a] **virtual disk driver** is provided between the operating system and the hard disk driver of the primary server" such that "[a]fter **the virtual disk driver** receives a disk write request that should be mirrored, the **virtual disk driver** first sends a disk write request to the secondary server" and "[t]he **virtual disk driver** then sends the disk write request to a disk drive on the primary server" (Yu, Abstract, lines 1-9). The invention of Day, on the other hand, is directed to a "file translation system and a physical information and extensions file for an intermediary controller" wherein "[t]he file translation system [allows] a host computer to directly access data from a different host type without moving the actual data" (Day, Abstract, lines 1-5). However,

Applicants respectfully submit that neither of these references teach or suggest an emulated computer system nor a virtual hard drive as these terms are used in the present Application—a shortcoming in the Yu reference (discussed earlier herein) that the Day reference does not overcome.

For these reasons, neither Yu nor Day, separately or in combination, teach or suggest an emulated computer system, a virtual hard drive, nor inventions pertaining to same. Therefore, based on the foregoing analysis, the Applicants respectfully submit that Yu and Day, alone and in combination, fail to teach all the claim elements necessary to render independent Claims 1, 4, 8, 11, and 15 obvious under 35 U.S.C. § 102(b). Therefore, in light of the fact that Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 depend directly or indirectly upon Claims 1, 4, 8, 11, and 15, and given that claims that depend on allowable claims are themselves allowable, Applicants respectfully request that these rejections be withdrawn and that Claims 2, 3, 5-7, 9, 10, 12, 13, and 16-18 be allowed to issue.

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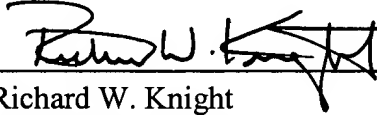
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PROCEDURE PURSUANT TO
37 CFR § 1.116

CONCLUSION

Based on the reasons and rationale set forth herein, Applicants respectfully submit that the objections and rejections have been overcome and, accordingly, Applicants request that the objections and rejections be withdrawn and that the claims be allowed to issue. Should the Examiner have any questions, comments, or suggestions that would expedite the prosecution of the present case to allowance, Applicants' undersigned representative earnestly requests a telephone conference at (206) 332-1394.

Respectfully submitted,

Date: September 9, 2004


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